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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/657,841	09/09/2003	Johannes Baur	P2001,0176	2117

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EXAMINER

MULPURI, SAVITRI

ART UNIT	PAPER NUMBER
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2812

DATE MAILED: 03/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/657,841

Applicant(s)

BAUR ET AL.

Examiner

Savitri Mulpuri

Art Unit

2812

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/3/2003
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Information Disclosure Statement

Statement (IDS) submitted on 10/3/2003 was considered the information disclosure by the examiner.

Claim Objections

Claims 1-26 are objected to because of the following informalities: In instant claimed process and product of semiconductor light emitting structure words vias, trenches and recess are redundant. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-17, 19, 25, 26 are rejected under 35 U.S.C. 102(e) as being anticipated by Kawai (US 6,239,033).

Kawai discloses substantially similar process as claimed instant process for making light emitting semiconductor component: Providing a sapphire substrate "51" with opposite first and second surfaces; growing GaN based epitaxial multilayer structure "53-59" on first surface of the substrate, wherein

layer "56" active layer; etching second surface of the sapphire substrate by etching technique to form a void of trench recess or trench in a truncated cone shape with tapered side walls i.e., one planar surface having an angle different from 90 with variation in the range of 20 –70 degrees from the second surface of the sapphire substrate (see fig.1 and related description). Kawai inherently teaches sapphire is a radiation or light transmission window with cubic shape and whose refractive index is higher than that of GaN based semiconductor material. Kawai discloses forming void in a curved shape (see fig. 13). Kawai further discloses forming vias by laser ablation technique (see col. 5, lines 39-46).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 22-24 are rejected under 35 U.S.C. 103(a) as being obvious over Kawai in combination with Ichihara (US 5,814,532).

Kawai teaches substantially same process as claimed process. Kawai does not teach forming vias in the sapphire substrate by sawing. Ichihara teaches forming vias by sawing technique with circular blade "3" and whose cross section is trapezoidal shape (see fig1 b and col.5, lines 570620. It would have been obvious to one of ordinary skill in the art to use blade for sawing the sapphire substrate because Ichihara teaches art

recognized equivalent techniques of etching or sawing for the same purpose of forming vias in the sapphire substrate.

Claim 18,21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawai in combination with Wong et al (US 6,562,648).

Kawai teaches substantially same as instant claimed process. Kawai does not teach bonding the GaN based multilayer structure to substrate. Wong et al teaches bonding GaN based layers "1110" to substrate "1105". It would have been obvious to join the GaN based multi layers with substrate in the invention kawai by bonding techniques because Wong et al teaches art recognized process of either epitaxial growth of GaN based layers "1110" on the substrate "215" or bonding GaN epitaxial layers "1110" with substrate "1105" (see fig. 1a and 1 b).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Cited prior art teaches sapphire substrate with recess for light transmission.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Savitri Mulpuri whose telephone number is 571-271-1677. The examiner can normally be reached on Mon from Fri to 7-4.30.p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Niebling, can be reached on 571-2721-1679. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Savitri Mulpuri
Primary Examiner
Art Unit 2812